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In the Supreme Court of the United States

October Term, 1967

STATE OF UTAH,

Plaintiff,

v.

UNITED STATES OF AMERICA,

Defendant.

BRIEF OF THE STATE OF UTAH IN SUPPORT OF THE NAVIGABILITY OF THE GREAT SALT LAKE

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I. MEMORANDUM

A. Preliminary Statement

The procedural history of the instant litigation is clearly reflected from the record of prior proceedings, and there seems to be little point in again detailing those procedures and events. Therefore, in this memorandum Utah will simply make a brief statement with respect to the issue of navigation, and will then discuss the applicable legal test of navigability.

The essential purpose of this litigation is to determine the respective claims of ownership asserted by Utah and the United States to lands surrounding the

Great Salt Lake which previously constituted a part of the bed of the lake but which are now exposed because of the lower water level of the lake. As such, the basic issue for determination is whether the common law doctrine of reliction should be applied to permit the United States to acquire title from Utah to certain of the exposed lands. The question of navigability of the Great Salt Lake is thus not the basic issue in the litigation, but it is a necessary preliminary issue.

The reason it is a necessary preliminary issue is because Utah is the plaintiff in this litigation and claims that, prior to the quit claim conveyance by the United States to Utah, Utah had a title superior to that of the United States in and to the exposed lands. If so, Utah received no title from the United States as a result of the conveyance and is obligated to pay nothing to the United States for such conveyance. Thus, as plaintiff, Utah has the burden of proving a *prima facie* case showing that it acquired prior title to the bed of the Great Salt Lake at statehood because it was a navigable body of water; it will then be incumbent upon the United States to prove its claim that the doctrine of reliction somehow divested Utah of its ownership of certain parts of the exposed lands that once constituted part of the lake bed. Utah's claim of title is based on the equal footing doctrine, which, so far as applicable here, holds that the United States Constitution guarantees to each state, upon its admission to the union and pursuant to its enabling act, equal sovereign rights and equal footing with every other state in the union, including ownership of the beds of all navigable lakes and rivers located within such state.

Martin v. Wadell, 41 U.S. (16 Pet.) 367 (1842); *Pollard v. Hagan,* 44 U.S. (3 How.) 212 (1845); *Shively v. Bowlbey,* 152 U. S. 1 (1894); *United States v. Holt State Bank,* 270 U. S. 49 (1926); and *United States v. Utah,* 283 U.S. 64 (1931).

The United States does not deny the validity of the above doctrine, but has denied the allegations of Utah's complaint, including the allegation of the navigability of the Great Salt Lake on January 4, 1896, which was the date that Utah obtained statehood. In view of that denial, it was necessary for Utah to prove that the lake was navigable at the date of statehood. To simplify the proceedings, it was agreed by counsel for Utah and the United States, and approved by the Special Master, that a preliminary hearing should first be held on the issue of navigability only. If the lake should be determined to be navigable, then a second hearing would be held to determine the applicability of the doctrine of reliction. The hearing on navigability was held May 19 through 21, 1969, in Salt Lake City, Utah. Thus, the only question presently under consideration is the navigability of the lake, and all other questions pertinent to the litigation are to be reserved for subsequent consideration and determination.[1]

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1 In this regard, Utah raised certain issues at the hearing concerning the propriety of taking judicial notice that the lake was navigable at statehood, the applicability of the doctrine of equitable estoppel against the United States, and compromise and settlement between the United States Congress and the Utah Legislature. Utah further expressed the position that the only possible ramifications of a determination of navigability related to ownership of the exposed lands, and not to ownership of the water covered bed or minerals in solution in the lake waters (see, generally, T. 6-11). Since these issues and contentions appear to be moot if the lake is found to be navigable, they are not further raised or argued in this brief. If, for some reason, the lake should be found to be non-navigable, Utah then will determine when and to what extent it wishes to press such arguments.

Utah believes that it is obvious that the Great Salt Lake was navigable at statehood, that the record contains uncontroverted evidence which more than satisfies the federal test of navigability, that a finding of navigability can be made with reasonable dispatch, and that the litigation can properly proceed to a determination of the questions relating to reliction. With that background, it would appear to be appropriate to proceed to examine the legal test of navigability as laid down by the United States Supreme Court.

B. FEDERAL TEST OF NAVIGABILITY

The federal test of navigability, for the purpose of determining whether a state obtained title to the bed of a body of water at statehood, is whether the river or lake in its natural and ordinary condition was physically capable of supporting commercial navigation, and thus serving as a useful highway of commerce. This test was laid down by the United States Supreme Court in 1879, and has been followed consistently in all subsequent cases.

Perhaps the leading case applying the federal test of navigability is *United States v. Utah*, 283 U. S. 64 (1931), which involved a determination of the navigability of certain portions of the Colorado, Green and San Juan Rivers in Utah, where the sections of the rivers in question contained many impediments to navigation and were only about three feet deep during major portions of the year. Counsel for the United States stressed the absence of historical data showing the early navigation of the rivers by Indians, fur traders or early explorers; that is, uses of the sort

sometimes earlier mentioned by the Court in considering the navigability of certain other streams. The Government had argued (see pages 66-67) that evidence of such lack of use in difficult days of overland travel was weighty evidence of non-navigability, and that no lake or stream had been declared navigable by the Supreme Court unless it had appeared from the evidence that the stream or lake had actually supported a substantial waterborne commerce.

The Court laid to rest the Government's attempt to read into the navigability test a requirement of actual substantial navigation, and at the same time reaffirmed the principles laid down by several earlier cases, with the following language (at page 82-83):

> "The question of the susceptibility (to use as highways of commerce) in the ordinary condition of the rivers, rather than the mere manner or extent of such use, is the crucial question. The Government insists that the uses of the rivers have been more of a private nature than of a public, commercial sort. But, assuming this to be the fact, it cannot be regarded as controlling when the rivers are shown to be capable of commercial use. The extent of existing commerce is not the test. The evidence of the actual use of streams, and especially of extensive and continued use for commercial purposes, may be most persuasive, but where conditions of exploration and settlement explain the infrequency or limited nature of such use, the susceptibility to use as a highway of commerce may still be satisfactorily proved . . . In Economy Power & Light Co. v. U. S., 256 U.S. 113, 122, 123, the Court quoted with approval the statement in the *Montello, supra*, that the 'capability of use by the public for purposes of transportation and com-

> merce affords the true criterion of the navigability of a river, rather than the extent and manner of such use.' "

The Government further attempted to argue that this line of reasoning required a consideration of probable future commerce, but that consideration was too speculative to be entertained by the Court. It was held that the State did not need to prove the probable need for future navigation, because there was always the possibility that such a future need could arise and (at page 83):

> "the possibilities of growth and future profitable use are not to be ignored. Utah, with its equality of right as a State of the Union, is not to be denied title to the beds of such rivers as were navigable in fact at the time of the admission of the the State either because the location of the rivers and the circumstances of the exploration and settlement of the country through which they flowed had made recourse to navigation a late adventure, or because commercial utilization on a large scale awaits future demands. The question remains one of fact as to the capacity of the rivers in their ordinary condition to meet the needs of commerce as these may arise in connection with the growth of the population, the multiplication of activities and the development of natural resources. And that capacity may be shown by physical characteristics and experimentation as well as by the uses to which the streams have been put."

Having failed in its attempt to read into the test of navigability a requirement of actual substantial use, the Government was forced to fall back on an attempt to dispute navigability of the rivers by establishing that

they contained impediments to navigation such as logs and debris, ice, floods, rapids, rapid velocities with sudden changes in the water level, shallow depths, instability of channel, and sand and sediment which combined with the tortuous course of the rivers to produce a succession of shifting sandbars. The Court conceded the presence of all of these impediments and entered into an extensive discussion (at pages 85-87) of the evidence regarding types and frequencies of the sandbars, which it felt to be the principal impediment to navigation. Nevertheless, the Court held that the fact of impediments was not equivalent to the fact of non-navigable capacity (at page 86):

> "Recognizing the difficulties which are thus created, the Master is plainly right in his conclusion the mere fact of the presence of such sandbars causing impediments to navigation does not make a river non-navigable. It is sufficient to refer to the well-known conditions on the Missouri River and the Mississippi River. The presence of sandbars must be taken in connection with other factors making for navigability. In The Montello, supra, the Court said (p. 443): Indeed, there are but few of our . . . rivers which did not originally present serious obstructions to an uninterrupted navigation. In some cases like the Fox River, they may be so great while they last as to prevent the use of the best instrumentalities for carrying on commerce, but the vital and essential point is whether the natural navigation of the river is such that it affords a channel for useful commerce. If this be so the river is navigable in fact, although its navigation may be encompassed with difficulties by reason of natural barriers such as rapids and sandbars."

The test of navigability thus applied in *United States v. Utah, supra,* was simply a re-affirmation of the same principles originally set forth by the Court in *The Daniel Ball,* 77 U.S. (10 Wall.) 557, 563-64 (1870), which involved a determination of the navigability of the Grand River in Michigan for purposes of application of a federal licensing statute. The Court, after noting that the doctrine of the common law as to the navigability of waters (i.e., that the ebb and flow of the tide constituted the usual test of navigability) had no application in this country, stated:

> "A different test must, therefore, be applied to determine the navigability of our rivers, and that is found in their navigable capacity. Those rivers must be regarded as public navigable rivers in law which are navigable in fact. And they are navigable in fact when they are used, or are susceptible of being used, in their ordinary condition, as highways for commerce, over which trade and travel are or may be conducted in the customary modes of trade and travel on water . . .
>
> From the conceded facts . . . the (Grand River) is capable of bearing a steamer of one hundred and twenty three tons burden, laden with merchandise and passengers . . . a distance of forty miles.

The Court's opinion indicated that the crux of the test of navigability was not whether the Grand River was actually being traversed by commercial navigation, whether of minute or substantial extent, but rather whether the stream had a capacity to sustain such commercial navigation, and whether it was susceptible of being used as a highway for commerce. Since the appel-

lant had conceded that the stream was capable of bearing a steamer of one hundred and twenty-three tons burden for a distance of forty miles, laden with merchandise and passengers, the Court reached the obvious conclusion that the Grand River did have a capacity to bear commercial navigation.

The navigability test laid down by *The Daniel Ball* was subsequently relied upon by the Supreme Court in *The Montello,* 20 Wall. 430 (1874). The Court there applied the test to the Fox River in Wisconsin, a stream which in its natural state was interrupted in various places by rapids and falls, and yet determined it to be navigable. The Court's opinion again emphasized that the crux of the test is the capability of use for navigation rather than the existence, extent, or manner of such use. The Court stated (at page 441):

> "(T)he true test of the navigability of a stream does not depend on the mode by which commerce is, or may be, conducted nor the difficulties attending the navigation . . .
>
> It would be a narrow rule to hold that . . . unless a river was capable of being navigated by steam or sail vessels it could not be treated as a public highway. The capability of use by the public for purposes of transportation and commerce affords the true criterion of the navigability of a river, rather than the extent and manner of that use. If it be capable in its natural state of being used for purposes of commerce, no matter in what mode the commerce may be conducted, it is navigable in fact . . ."

This test of navigability thus established by *The Daniel Ball* and followed by *The Montello,* that a body

of water is navigable in law if it is navigable in fact, has been subsequently followed and reaffirmed without any significant modification on numerous occasions, and a persuasive line of reasoning and authority has been developed. See, *e.g.*, *United States v. Rio Grande Irrigation Co.*, 174 U. S. 690, 699 (1898); *United States v. Cress*, 243 U. S. 316, 323-24 (1917); *Economy Light and Power Co. v. United States*, 256 U. S. 113, 118 (1921); and *Oklahoma v. Texas*, 258 U. S. 574, 586 (1921).

In *Oklahoma v. Texas, supra*, the Court (at page 586) noted it to be a:

> "settled rule in this country that navigability in fact is the text of navigability in law, and that whether a river is navigable in fact is to be determined by inquiring whether it is used, or is susceptible of being used, in its natural and ordinary condition as a highway for commerce, over which trade and travel are or may be conducted in the customary modes of trade and travel on water." (citing the *Daniel Ball*, The *Montello*, *United States v. Rio Grande Irrigation Co.*, *United States v. Cress*, and *Economy Power & Light Co. v. United States*).

The Court concluded (at page 591) that the portion of the Red River there in issue was non-navigable because:

> "trade and travel neither do nor can move over that part of the river, in its natural and ordinary condition, according to the modes of trade and travel customary on water; — in other words, that it is neither used, nor susceptible of being used, in its natural and ordinary condition as a

> highway for commerce. Its characteristics are such that its use for transportation has been and must be exceptional, and confined to the irregular and short periods of temporary high water. A greater capacity for practical and beneficial use in commerce is essential to establish navigability."

The opinion indicates that, once again, the Court's concern was that the river lacked a capacity to be used regularly in commerce to at least some extent, rather than whether commercial activity had been absent, minimal, or substantial.

The next important case to deal with the question of navigability was *United States v. Holt State Bank*, 270 U. S. 49 (1926). It was the first significant case to apply the test of navigability to a lake, and involved a bill in equity brought by the United States to quiet title to the bed of Mud Lake in Minnesota, which had been substantially drained at the time of suit. The outcome of the case turned on the navigability of Mud Lake. The test applied by the Court was the one evolved from the earlier line of cases cited above, and set forth (at page 56) as follows:

> "The rule long since approved by this court in applying the Constitution and laws of the United States is that streams or lakes which are navigable in fact must be regarded as navigable in law; that they are navigable in fact when they are used, or are susceptible of being used, in their natural and ordinary condition as highways for commerce, over which trade and travel are or may be conducted in the customary modes of trade and travel on water; and further, that navigability does not depend on the particular

> mode in which such use is or may be had—whether by steamboats, sailing vessels or flatboats—nor on an absence of occasional difficulties in navigation, but on the fact, if it be a fact, that the stream in its natural and ordinary condition affords a channel for useful commerce."

This test was applied to evidence which the Court felt established, among others, the following facts:

> "In its natural and ordinary condition the lake was three to six feet deep . . . Early visitors and settlers in that vicinity used the river and lake as a route of travel, employing the small boats of the period for the purpose . . . . Merchants in the settlements at Liner and Grygla, which were several miles up Mud River from the lake, used the river and lake in sending for and bringing in their supplies. True, the navigation was limited, but this was because trade and travel in that vicinity were limited. In seasons of great drought there was difficulty in getting boats up the river and through the lake, but this was exceptional, the usual conditions being as just stated. Sand bars in some parts of the lake prevented boats from moving readily all over it, but the bars could be avoided by keeping the boats in the deeper parts or channels . . . Gasoline motor boats were used in surveying and marking the line of the intended ditch through the lake and the ditch was excavated with floating dredges."

The Court concluded that the evidence required a finding that Mud Lake was navigable, pointing out that the lake was susceptible of being used as a highway for trade and travel if there had been a need for trade and travel on the lake.

It will thus be observed that at all times during the last century the United States Supreme Court has consistently applied the same test of navigability that was adhered to and emphasized in *United States v. Utah, supra,* which is the most recent case of significance on the subject, and where the Court found water three feet deep sufficient to support navigation (only about 10% as deep as the 30 foot depth of the Great Salt Lake).

C. CONCLUSION

1. *General*

To satisfy fully the test of navigability as laid down and consistently followed by the United States Supreme Court over the 100 years last past, Utah need merely show that the Great Salt Lake was susceptible of commercial navigation on January 4, 1896, the date at which Utah obtained statehood. It is believed that the uncontroverted exhibits showing the lake at statehood to have had a depth of 30 feet, a length of more than 75 miles, and a width of more than 30 miles, clearly show such susceptibility. Further, it appears that the United States does not deny this susceptibility, since counsel for the United States explained during the hearing that the "Queen Mary" and other "boats which can cross the Atlantic could float in the Great Salt Lake and maybe go—travel in the middle of the lake to some degree up and down the channel" (T. 19), and "almost any boat in the world, so far as I know, could be used on the Great Salt Lake" (T. 280). The position of the United States was that there was no com-

mercial reason or need to utilize the capability of the lake for commercial navigation (T. 19).

As shown above, the United States Supreme Court has clearly and consistently rejected arguments claiming that either a commercial use or a commercial need must be shown. The Court has made clear that a showing of susceptibility is enough to vest title in the state, because future possibilities of use or need are too remote and speculative to be foreseen with any certainty, and they cannot be discounted. When and if the need should arise, the body of water physically capable of supporting navigation will be there to fill the need.

Even so, Utah believes that the record demonstrates that the Great Salt Lake was used for commercial navigation prior to statehood, at the time of statehood, and at the present time. So, while Utah rejects any argument that either a commercial use or a commercial need must be shown, if such a novel standard should be adopted, the evidence in the record clearly and unequivocally would satisfy that standard.

2. *Method of Reference*

Turning now to a different matter, it is believed that some explanation will be helpful to the Court with respect to the organization of the remaining contents of this brief. Preceding the proposed Findings of Fact and Conclusions of Law, there is a section entitled Summary of Evidence, which contains a brief resume' of the testimony of the witnesses, an identification of the exhibits introduced, and a review of the physical

characteristics of the Great Salt Lake. This summary is intended to serve as a review of the evidence prior to presenting the proposed Findings and Conclusions. The proposed Findings of Fact further contain direct citations to the record, but the Summary of Evidence will afford a preliminary and somewhat explanatory reference for every citation to testimony or exhibits referred to in the Findings of Fact.

The exhibits are identified by the same designation and in the same manner as they were introduced; the two volume transcript of the testimony of witnesses and other proceedings in open court is simply cited by the letter "T", followed by the appropriate page number. Each witness is listed in the table of contents at the beginning of the brief, along with the page at which his testimony is summarized, so that the testimony of any witness may be readily reviewed. Further, each exhibit as listed in the Summary of Exhibits on pages 33-41 of this brief contains a citation to that part of the transcript where the particular exhibit was first discussed or introduced.

It is hoped that this system of reference will expedite use of the transcript in (1) reviewing the testimony of witnesses and (2) obtaining foundation and explanatory information relating to the exhibits.

II. SUMMARY OF EVIDENCE

A. SUMMARY OF TESTIMONY

1. *Zillah Walker Manning*, called as a witness for plaintiff, testified that:

   a. She was born in 1891, five years before statehood, in Farmington, Utah, just east of Great

Salt Lake (T. 217); her family lived on Antelope Island at the time of her birth, and she lived on Antelope Island until she was 12 years old, during which time her father was superintendent of livestock on the island (T. 217-18).

b. While on the island (until over 12 years of age) she remembered livestock always moved to and from the island and mainland "on a flat bottom boat" (T. 219); and that her family would get their supplies from Farmington by boat (T. 220). She identified herself on a picture taken on the island and marked as Exhibit P-39, and admitted into evidence as Page 32-A of Exhibit P-8, taken when she was 11 years old (1902) T. 220); she also identified a picture of a boat that would frequently carry about 40 head of cattle and buffalo, and was powered by sail from the island to Farmington and back (T. 221-22, Exhibit P-8, page 32-A).

c. She remembered that a harvester, requiring 12 horses to pull it, was taken to the island by boat (T. 222); and that grain raised on the island was shipped by boat, "lots of times", about twice a week in the summertime and once a month in the winter (T. 223).

d. She remembered when her father went by boat to Salt Lake City and stayed two extra days to celebrate Utah's statehood, and he brought her a chrysanthemum, which she still has (T. 223-24).

e. She knew a Mr. George Frarey, who made his living with a boat by taking people around the lake, from Antelope Island (T. 225).

f. On cross-examination, she explained that White and Sons owned the cattle boat used by her father (T. 227); and that a Mr. Backman owned a boat which he used to ship others ranchers' sheep from Wenner's Island (Fremont Island) to

Syracuse (T. 228) in Davis County (Exhibit P-1).

2. *Leon L. Imlay,* called as a witness for plaintiff, testified that:

a. He was born in 1893, three years prior to statehood, at Grantsville, Utah, near the southern shore of the Great Salt Lake (T. 61) and lived there until 1939 (T. 66).

b. His first recollection of visiting the Great Salt Lake was in 1898, when he was nearly five years of age, at which time he went to Garfield Beach with his parents, where he rode as a passenger on an excursion boat similar to the one pictured at page 10 of Exhibit P-8 (T. 62-63). He was able to fix the exact year of that first visit because his mother was pregnant with a child which was delivered August 15, 1898, which was shortly after the boat trip (T. 64). He also recalled that at that early age he had his hair in long ringlets, and had a vivid recollection of some passengers referring to him as a "beautiful young lady" (T. 65).

c. Many times thereafter he went to the Garfield Beach for similar boat excursion rides (T. 63).

d. He first visited Saltair Resort when he was about 15 years of age (12 years after statehood) (T. 68), and remembered Saltair Beach as pictured on page 13 of Exhibit P-8 and Saltair Resort as pictured on page 14 of Exhibit P-8 (T. 67-68). During that first visit to Saltair, he observed "many" boats, representing "everything you could think of," and including sailboats, rowboats and powerboats (T. 68).

e. He lived at Grantsville for approximately 46 years (1893-1939) and during that time made frequent trips to Salt Lake City, traveling on

a road that passed within 300 yards of the Great Salt Lake; during these trips he saw many sailboats, rowboats and power driven boats of various sizes on the Great Salt Lake; he observed these boats as far out on the Lake as the center; and he often counted the boats that could be seen, and sometimes he counted more than 50 boats, which were operating out of Garfield Beach (T. 66-67).

f. Beginning in 1928, as an employee of the Royal Crystal Salt Company, he was assigned the responsibility of operating the pump station owned by that company and located near Saltair Resort, and used to pump lake brines to evaporation ponds for production of commercial salt; he was in charge of the pump station for about 11 years, or until 1939; during this period he visited the pump station one or two days each week, the pump station being located in water about 8 feet deep; during these visits he would see a number of boats, ranging in size from "tiny" boats to large power boats; and, in fact, he and his crew always had to use boats to operate the pump station, carrying crewmen, gasoline for the pump, fresh water and general supplies (T. 68-69, 73).

g. He also visited Gunnison Island "with Charles Stoddard on his sheep barge," and "observed where there had been operation of moving guano from the island for fertilizer," and the only way to transport guano from the island was by boat (T. 70-71).

3. *Joseph S. Nelson*, called as a witness for plaintiff, testified that:

a. He is a lawyer, was born in 1897 (one year after statehood), and began working at the Saltair Resort when ten years of age because his father

was president and manager of the resort; and he remembered Saltair as pictured at pages 13 and 14 of Exhibit P-8 (T. 83-84).

b. He said Saltair had a regular boat harbor and a beach (T. 89); that part of his job was to collect fees for the rental of boats on the lake; that Saltair Beach operated a commercial excursion boat called the "Alice Ann," named after his sister (T. 85); he remembered "many" other commercial boats for hire, including the "Vista" and the "Irene" (T. 87-89); and said Saltair entertained as many as 10,000 bathers a day and 4,000 dancers at night (T. 87).

c. He remembered a boat harbor at Sunset Beach (T. 92) and a boat harbor at Garfield Beach owned by Salt Lake County, identifying Exhibit P-11 as a picture of one part of that harbor and showing his brother's boathouse; he thought the picture was taken during the 1930's (T. 91-92).

d. He remembered livestock barging operations on the lake, including a boat named the "Ruth" owned by John Dooley "that was a commercial boat used for hauling cattle back and forth from the place they were raised and taken off Antelope Island"; and that the owners of the livestock arranged to transport "their cattle and sheep in boats, big barges to Saltair" (T. 85-86), and that the barges would each hold over 50 head of cattle (T. 89); that the livestock were shipped from Antelope Island to a railhead at Saltair, where they were unloaded from the barges into chutes and then shipped by rail (T. 85-86); and that he observed this livestock barging operation each year between 1914 and 1920 (T. 93-94).

e. On cross-examination, he explained that the "Ruth" was actually in the nature of a tug boat

used to tow livestock barges (T. 96); that he knew of other livestock barging operations from Antelope Island to a Davis County boat dock, but wasn't familiar with the details (T. 97); that the boats used for rental and commercial excursions held from two passengers to fifty or more (T. 94-95); and that Southern Pacific owned a big 50 horsepower boat called the "E. W. Marsh" which was used to patrol the Lucin Cutoff trestle (T. 96).

4. *Claire Wilcox Noall,* called as a witness for plaintiff, testified that:

a. She was born in 1892, 4 years prior to statehood, in Salt Lake City, Utah; received a B.A. Degree from the University of Utah and completed the M.A. Degree requirements in creative writing; and has done considerable historical work and had experience as a photographer (T. 75).

b. She was a neighbor of Captain Davis, and had "several boating experiences" with him on the Great Salt Lake (T. 75); and she specifically remembered taking overnight excursions on the "Cambria," owned by Captain Davis, between the years of 1904 and 1906, when the Lucin Cutoff trestle was being constructed (T. 76); on the overnight excursions 20 to 24 people were on the boat, and 20 to 30 people were on the boat during daily excursions (T. 77); and after Captain Davis discontinued operating boats, his son took commercial excursions on the Great Salt Lake (T. 78).

c. Before she was 8 years of age she went to Saltair, and remembered it "exactly" as shown on pages 12 and 14 of Exhibit P-8, and remembered seeing boats at Saltair (T. 78-79).

5. *Francis W. Kirkham,* called as a witness for plaintiff, testified that:

   a. He was born in 1877, nine years before Utah's statehood; was familiar with the boating activities at Garfield Beach before statehood; was a paying passenger on the excursion boat pictured on page 12 of Exhibit P-8; and the first such trip that he took was before 1896 (T. 233-35).

   b. Dr. Kirkham's educational background included an A.B. Degree from the University of Michigan, an LL.B. Degree from the University of Utah, and a Ph.D. from the University of California at Berkeley (T. 233).

6. *Phil Dern,* called as a witness for plaintiff, testified that:

   a. He is 49 years of age; his father operated Sunset Beach from 1934 until his death in 1957, and prior to 1934 had operated Black Rock Beach; and since 1957 he (Phil Dern) has operated Sunset Beach (T. 111).

   b. Every year from 1934 to the present time Sunset Beach has operated boats for hire, usually on a concession basis whereby Sunset Beach receives a percentage of the gross income from boat rides and rentals, which percentage now approximates $10,000.00 per year (T. 112); the average boat would carry 12 to 15 passengers, although the present concessionaire (John Silver) also uses several larger amphibious "army ducks" (T. 113).

   c. He operated a 28 foot Chris-Craft for about 5 years after World War II; Donald Newhouse, a concessionaire, operated a 42 foot twin engine diesel which carried about 35 commercial passengers and operated on a full time basis from the middle of May to the end of September of

each year (T. 113-14); and his present boat rides are typically from 20 to 30 minutes to accommodate the time schedule of Greyline Motor Tours passengers, although other passengers can, and do, take excursions anyplace on the lake (T. 116, 121).

d. He now has been awarded a contract by the Utah Park and Recreation Commission to operate boats on Antelope Island State Park at the north end of Antelope Island; and this will require the installation of a floating dock and related boating facilities, the sale of gas and oil to boaters, and boat rides for hire (T. 114-15, 119).

e. He personally observed commercial shipment of guano from Bird Island by a company which used a 50 to 60 foot LCI landing craft, loading the guano with a tractor with a front end loader, and shipping it approximately 25 to 30 miles from Bird Island to the Salt Lake County Boat Harbor; the guano company operated on a regular basis each year from about 1947 to 1955, a period of "eight or nine years" (T. 116-17, 123-24).

7. *John Clawson Silver,* called as a witness for plaintiff, testified that:

a. Since 1963 he has operated the Silver Sands Beach on the Great Salt Lake for commercial boat rides, and during that time his income from boat passengers has increased from $8,000.00 to $30,000.00 per year (T. 287-88).

b. He operates eight "army ducks" and a launch, with each boat carrying 30 to 35 paying customers per trip; he has operated a 36 foot Chris-Craft on the lake for 13 years for business promotional purposes; and he is now considering purchasing a boat 100 to 200 feet long for commercial passenger service (T. 289-91).

c. He has operated several barges to ship salt crystals and rock from Antelope Island and Stansbury Island to the mainland; these products were not offered for sale but were used for decorative purposes in his commercial appliance store (T. 289).

8. *Reese F. Llewellyn,* called as a witness for plaintiff, testified that:

a. He is a claims agent and special agent of D & RG Railroad; a member of the Utah State Bar, and previously worked for Salt Lake County Sheriff's office from 1935 to 1943 (T. 103).

b. His duties as a deputy sheriff took him to Sunset Beach and Black Rock Beach and he identified Exhibit P-11 as part of the Salt Lake County Boat Harbor, built as "a big 'T' shaped boat harbor" (T. 104).

c. The Salt Lake County Sheriff operated a tug-like boat, 25 to 30 feet long, with a cabin and powered by a diesel motor under the deck which was used for law enforcement patrol and rescue, operating continuously during summer months, over substantial areas of the Lake (T. 105-06).

d. He frequently observed between 40 and 50 boats moored at the Salt Lake County Boat Harbor, and as many as 75 to 100 additional boats out on the lake. Also, other excursion and rental boats were at Sunset and Black Rock Beaches. These observations were made while he was serving on the lake as a deputy sheriff from 1935 to 1943 (T. 106-07).

9. *Harold J. Tippetts,* called as a witness for plaintiff, testified that:

a. He is employed by the Division of Parks and Recreation of the State of Utah and previously

served as the Director of the Great Salt Lake Authority (T. 129).

b. The Division of Parks and Recreation has created and is developing Antelope Island State Park at the north end of Antelope Island, encompassing 2,000 acres of land; the park is connected to the mainland by a recently constructed causeway fill road 7½ miles in length at a cost to date in excess of $750,000.00 (T. 129-30, 137); a boat ramp is to be constructed at the park and $445,000.00 has been planned for marina facilities (T. 130-31); there will be permanent berths for 200 boats, ranging in size from small canoes to 45 foot craft (T. 135, Exhibit P-16). The major boating travel probably will be from the southern part of the lake to the park, traveling west of Antelope Island, but such travel could cover the major portion of the lake (T. 132); and there will be a boat concessionaire at the park (T. 131-32).

c. Senate Bill 25 is now pending in the U.S. Congress to establish a Great Salt Lake National Monument on Antelope Island (T. 130, Exhibit P-15); the National Park Service estimated that the Utah State Park on Antelope Island would attract 300,000 visitors the first year during the 5 year development period, and would attract in excess of 840,000 visitors per year by the end of such development period (T. 31).

d. The State of Utah, Salt Lake County and Hill Air Force Base own and operate rescue craft on the lake (T. 132).

10. *Thomas T. Lundee*, called as a witness for plaintiff, testified that:

a. He is a consulting engineer and naval architect, licensed by the State of California, and owns his own consulting company with offices in San

Francisco (T. 166-67); he has designed many small barges, large barges, off-shore drill rigs, bulk carriers, tug boats, and dredges (T. 167-68); he has obtained about 15 patents for marine equipment design, including one for the "push-tow" process for large barges designed by him for use on Great Salt Lake (T. 169); and, generally, has designed marine craft for over 30 years, is familiar with barge design, operation and use, and is familiar with navigable waters, including navigable waters of the United States (T. 169).

b. He was engaged by Morrison-Knudson Company and International Engineers to design barges and tug boats for use on Great Salt Lake to construct a rock fill causeway across the lake for Southern Pacific Company (T. 170); he studied the waters of the lake, finding them to contain about 20% more salt than ocean water, thus resulting in a 20% "bonus" in carrying capacity of barges and other craft because the greater buoyancy resulted in a shallower draft (T. 171-72); and he discovered that the heavier salt concentration prevented the water from freezing, thus permitting year round barging operations (T. 172, 177), and that such salt concentration presented no serious problems of corrosion, operation or maintenance (T. 173-74, 177).

c. Thirty nine boats were acquired at a cost of about $7,000,000.00 (T. 176) for use on the Great Salt Lake causeway construction (T. 173); including barges and equipment designed specifically for that particular job (T. 169, 175); and that the boats consisted of:

(1) Six large dump barges 250 feet long, 55 feet wide, and 12 1/3 feet deep, each capable of carrying a per trip tonnage load

equal to 90 railroad cars, with a draft of 13 feet (T. 175-76);

(2) Six 1,000 horsepower tow boats to push the dump barges;

(3) Five deck barges 178 feet long, 48 feet wide, and 10 feet high, with a per trip carrying capacity of 1,600 tons each;

(4) Two 600 horsepower twin-screw tour boats;

(5) Three 220 horsepower tug boats;

(6) Two dredges;

(7) Fifteen miscellaneous boats, including dredge tenders, anchor scows, anchor barges, pile driving barges, crew boats and scows (T. 176, Exhibit P-21).

d. The thirty nine boats were used on the Great Salt Lake for about two years, from early 1957 to 1959 (T. 177), completing a job that cost about $49,000,000.00 and required the removal and placing of 41,000,000 cubic yards (over 70,000,000 tons) of fill, with over 90% of the fill being placed by barges as the only feasible means of hauling and placing such fill (T. 178-79); the tonnage of fill hauled by the barges was "vastly cheaper" than that part of the fill actually hauled by trucks and railroad cars (less than 10%) (T. 179).

e. The Great Salt Lake was particularly economical for navigation, because:

(1) The water did not freeze in winter and the causeway fleet operated day and night, six or seven days a week, twelve months a year (T. -

(2) The harbor, dredged at Little Valley near Promontory Point, was 400 feet wide and

1,500 feet long, and was unusually inexpensive because it was clay with very little rock (T. 181); due to lack of currents and tides in the lake, the harbor did not silt or fill and during the two years of continual use no further dredging, cleaning or maintenance was required (T. 182-84); and, in general, the cost of harbor construction and maintenance on the Great Salt Lake was "appreciably less" than on other inland waterways customarily used for navigation (T. 184).

(3) The greater buoyancy of the waters of the Great Salt Lake made navigation more economical than navigation on other inland waters or oceans because there is at least a 20% bonus in carrying capacity (T. 171); the dump barges that operated fully loaded on Great Salt Lake with a 13 foot draft would have required a 15½ foot draft on the Mississippi River, and since that river has a 9 foot governing channel, could only have operated there with a partial load (T. 175-76); all barges in commercial use in 1896 when Utah obtained statehood could have successfully navigated on the Great Salt Lake (T. 207-08); and barges in common use today, such as grain barges, cement barges, petroleum barges and all other commercial barges shown in a publication entitled "Commercial Transportation on the Inland Waterways," published by the Society of Naval Architects and Marine Engineers (Exhibit P-22), could operate fully loaded on the Great Salt Lake (T. 206).

f. Additionally, Mr. Lundee stated that:

(1) After completion of the causeway on Great Salt Lake, the barges and other craft were in good condition and were sold at favor-

able prices for use elsewhere in the world (some, loaded with smaller craft, were towed across the Atlantic Ocean for use in Portugal) (T. 173-74).

(2) It would be necessary to use boats to drill for oil or gas underneath the bed of the Great Salt Lake (T. 210).

(3) If the need should arise, the railroad trestle and causeway could be modified at reasonable cost to accommodate larger commercial vessels, probably by constructing draw bridges or swing bridges (T. 206-07).

11. *Golden O. Peterson*, called as a witness for plaintiff, testified that:

a. He is employed by the Southern Pacific Company, owner of the railroad trestle and causeway across Great Salt Lake; he was first assigned to duty on the lake in 1942, and in 1956 was promoted to his present position as Assistant Bridges and Buildings Supervisor (T. 148-49).

b. Since 1956, he has used boats each week on the lake to inspect the trestle for safety; and prior to the construction of the causeway the boat patrol trips to inspect the trestle were made daily (T. 150); the boats now used for inspection and patrol include three 28 foot steel boats with 12 foot beams (Exhibits P-19 and P-20, T. 150-52) and one 25 foot steel boat (T. 153); the trestle is about 12 miles long and a round trip on patrol takes about 5 hours (T. 150-51); the 25 foot boat can go through the trestle and the causeway culverts at all times; but when the lake level is high the 28 foot boats sometimes have trouble with vertical clearance in the causeway culverts, and when the water is low the 28 foot boats sometimes have difficulty with lateral

clearance when passing through the trestle (T. 153-56).

12. *Gail Sanders,* called as a witness for plaintiff, testified that:

a. He is president of the Sanders Brine Shrimp Company; has been engaged in brine shrimp operations on the Great Salt Lake since 1953; and he and his brother are employed on a full time basis by the business (T. 157).

b. Most brine shrimp are harvested near Antelope Island and require the use of boats, both for harvesting and transporting; shrimp eggs are blown to the shore and ordinarily harvested with special equipment on a four wheel drive vehicle (T. 158-59, 163); the shrimp and eggs are sold for tropical fish food, and the eggs are vacuum packed in cans and the shrimp frozen in plastic bags and shipped all over the world (T. 160, 163); eggs usually represent the majority harvest, but conditions vary and this is not always so (T. 163-64); the largest annual harvest of eggs was 200,000 pounds (T. 161) and the largest annual harvest of shrimp was 90,000 pounds (T. 162), and they pay the Utah Division of Fish and Game a royalty of about $5,000.00 per year (T. 160).

c. The company uses three air boats 18 feet long and 6 feet wide (each capable of carrying about 1,200 pounds of adult shrimp) (T. 158-59); other boats have been used in the past, but the air boats are preferable because they can operate in any depth of water (T. 158).

13. *William Paxton Hewitt,* called as a witness for plaintiff, testified that:

a. He is Director of the Utah Geological and Mineralogical Survey (UGMS) and Professor of Geology at the University of Utah (T. 139).

b. The UMGS operates a fleet of five boats on the Great Salt Lake, including three amphibious ducks, a 21 foot motor dory, and a 42 foot steel research vessel with a 13 foot beam (T. 130-40, 145, Exhibits P-14, P-24 and P-25); these boats are used for scientific investigations on the lake, and the only way this can be done is through the use of boats (T. 140); the investigative work includes study of the chemical characteristics of, and variations in, the brines (T. 140), and study of the bottom sediments to determine the required support structures for oil exploration drilling and possible mineral extraction from bed sediments (T. 141); other investigative studies have been performed by private organizations (Exhibit P-17, T. 142) by renting the large UGMS boat for $550.00 per day, by the U. S. Army Corps of Engineers for a national defense mapping program in 1968 (T. 143), and both the Water Resources Division and the Topographic Division of the United States Geological Survey use the UGMS craft for scientific work (T. 146); during 1969 the University of Wisconsin will use the UGMS craft to perform seismic work on the lake, in cooperation with the UGMS and the Department of Geophysics at the University of Utah (T. 145); and Hogel Zoo uses UGMS craft each year to obtain birds from the lake islands for trades and exchanges with other zoos (T. 145-46).

c. The UGMS craft navigate all parts of the lake, both north and south of the railroad causeway (T. 143); and the studies being conducted now, and in progress since 1965, are projected to continue indefinitely (T. 141-42).

d. There are commercial deposits of lithic sand or lime sand, which is used as a flux in smelting operations, on the south shore of the lake, on the

west side of the lake, and to the northwest of Stansbury Island (T. 146).

14. *Donald G. Prince,* called as a witness for plaintiff, testified that:

He has been employed for 15 years last past by the Division of State Lands, State of Utah; that there has been constant leasing of the bed of the Great Salt Lake for oil and gas during these 15 years, such leases covering about 600,000 acres; the State always charges a lease rental fee; the lessees have been and are major oil companies; leases are still outstanding; several wells have been drilled; but no wells are currently in the process of being drilled (T. 127-28).

15. *John Nagel,* called as a witness for plaintiff, testified that:

He is in charge of waterfowl management for the Division of Fish and Game of the State of Utah, and has been so associated for seven years (T. 212); there are 80,000 acres of developed waterfowl habitat and an additional 80,000 acres of natural waterfowl habitat on the Great Salt Lake, plus habitat for many additional birds (T. 214); there are 5,000,000 days use per year of the lake by waterfowl and marsh related birds (T. 214).

16. *Helmut H. Doelling,* called as a witness for plaintiff, testified that:

a. He is an economic geologist at the University of Utah, employed by the Utah Geological and Mineralogical Survey, with a Ph.D. in geology (T. 293-94); his thesis for his doctorate was on the geology of an area west of the Great Salt Lake (T. 294).

b. There are valuable lead deposits near the lake, known as the Monarch Mine (T. 296); large commercial oolite sand deposits near Lakeside (T. 296) and north of the railroad causeway (T. 297); and "very pure, very good" deposits of dolomite and limestone all through the area west of the lake (T. 297); ragonite deposits in Grassy Mountains and Cedar Mountains near the lake (T. 297, 303); low grade, but potentially commercial, phostatic beds west of the Terrace Mountains (T. 298); deposits of metals, dolomite, limestone and building stone in Newfoundland Mountains and Silver Island near the lake (T. 298); and, in general, there is considerable unexplored mineral potential northwest of the Great Salt Lake (T. 299).

17. *Elmer Butler*, called as a witness for defendant, testified that:

a. He was born in Grantsville, Utah, near the Great Salt Lake, and is presently employed by the Water Resources Division of the United States Geological Survey (T. 246).

b. In connection with his employment, he participated in a water resources survey of some of the tributaries to the Great Salt Lake; this study was performed in April, 1964, when the lake was about 6.8 feet lower than at statehood and about 3 feet lower than at the time of the hearing in May, 1969 (247, 257-58); during his trip along the lake in 1964 he observed large areas of shoreland as "stretches of sand, marshy areas," and particularly in those places "where the lake had been" (T. 250); and "large areas of flats — some places its mud and salt beds" (T. 251); and, in general, that the area west of the lake was very sparsely populated (T. 247-54).

c. He also testified that he was familiar with the lake and was aware of the dolomite deposits near the lake which were shipped to the Geneva Plant of U. S. Steel for use as a flux, and that he worked at the dolomite mine as a boy (T. 261); that he was aware of "very valuable deposits" of dolomite sands on Stansbury Island which could only be shipped by boat during "expected" high cycles of the lake level (T. 262); that he was aware of valuable guano deposits shipped from Gunnison Island and Hat Island (T. 262); and knew that the livestock on Fremont Island could only be shipped by boat "or helicopter" and that the livestock on Antelope Island, during high water levels, could only be shipped by boat (T. 263-64).

B. SUMMARY OF EXHIBITS

Exhibit No.

P-1 U.S.G.S. map showing Great Salt Lake and surrounding area (T. 26).

P-2 U.S.G.S. hydrograph showing gage readings of level of Great Salt Lake from 1950 to present time (T. 27).

P-3 Diagram showing lake as it existed at statehood on January 4, 1896, including length, width, depth contours, and perimeter (T. 27).

P-4 Diagram showing longitudinal section of lake as to depth and variation in bed (T. 28).

P-5 Diagram showing longitudinal line illustrated in Exhibit P-4, and to be correlated with that exhibit (T. 28).

P-6 Early reconnaissance map of Great Salt Lake (1849-50) (T. 31).

P-7 Early 1871 mining map showing lake and location of General Connor's steamship routes on the lake (T. 32).

P-8 Historical Materials, as follows (T. 30-60):

Page 1	Use of boats in the early survey of Great Salt Lake in 1843 by John G. Fremont.
Page 2	Newspaper accounts in 1854 of launching of ship "The Timely Gull" and in 1855 of availability of sailboat "Deseret" for excursions "on reasonable terms."
Page 2-A	Account of large shipments of railroad ties on lake in 1869.
Page 2-B	Account of late 1860's and early 1870's where steamboats shipped "great quantities of ore" from south end of lake to northeast part of lake, and excursion boats capable of carrying 300 passengers.
Page 2-C	Pictures of "Lucin" as now located in San Francisco harbor, but built for and used on Great Salt Lake in construction of Lucin Cutoff trestle by Southern Pacific Company in 1906.
Pages 3-5	Newspaper advertisements in 1875 and 1876 promoting commercial passenger service on ship "General Garfield." The advertisements also reflect the variety and volume of commercial shipments, *e.g.*, on page 4: "On and after Au-

gust 1st the regular rates on Ore, Bullion, Coke, Charcoal and Coal will be $2.15 per ton between Salt Lake City and Halfway House in lots of not less than 12,000 lbs. loaded and unloaded by the company, and $2.00 per ton when not loaded or unloaded by the company. Freight for the west will be received on weekdays only from 7 a.m. to 10 a.m. and forwarded the same day, while that received from 10 a.m. to 6 p.m. wil be forwarded the next day. For any further information concerning freight, apply to J. N. Pike, Gen'l Freight Agent, G. W. Thatcher, Gen'l Passenger Agent, H. P. Kimball, Gen'l Superintendent."

Page 6 — Newspaper advertisement in 1877 reporting resort activities, including row boats and sail boats.

Page 7 — Newspaper advertisement and sketch of "grand opening" of Garfield Beach in 1887.

Page 8 — Newspaper advertisement of resort activities at Garfield Beach - including boating - in 1896, the year of Utah's statehood.

Page 9 — Photographs of steamship "General Garfield" and shipping dock at Halfway House near Lake Point.

Page 10	Photographs of "General Garfield" on Great Salt Lake.
Page 11	Photographs of boats at Garfield Beach.
Page 12	Photographs of "General Garfield" and Saltair, the latter being constructed in 1893, three years before Utah's hood in 1896.
Page 13	Photographs of Saltair and Garfield Beach.
Page 14	Photographs of Saltair.
Page 14-A	Photographs of Saltair in about 1909 and Black Rock in about 1900.
Page 15	Extract from publication discussing sheep, cattle, horses, cedar posts and buffalo being shipped on lake in 1870's.
Pages 16-A thru 16-D	Account of shipment of sheep (300 head per boat load), cattle, ore, salt, cedar posts (3,000 on top deck) — using several boats, including "Lady of the Lake," a flat boat for cattle, and a 75 foot salt transport boat—and shipping much cargo to a railhead in Davis County.
Page 17	Reference to "City of Corinne" carrying 400 sheep per load, and a picture of the Miller Brothers' boat.
Pages 18-A and 18-B	Extract from compilation by Kate Carter, identifying and

discussing several of the important early boats used on Great Salt Lake, and explaining that at one point the shipment of gold ore was a commercial incentive in addition to passengers and other freight.

Page 19 — Agreement whereby Central Pacific Railway Company in 1903 paid $2,500.00 to owner of Fremont Island as compensation for interference with navigation rights by construction of railroad trestle across lake from Ogden to Lucin.

Pages 20-22 — Extracts from Journal of Captain David L. Davis, who for fifty years (beginning in 1868) continually operated commercial and pleasure boats on the lake.

Pages 23-A thru 23-D — Excerpts from an article written by Mr. and Mrs. Stephen L. Richards about navigation experiences of Captain Davis on the Great Salt Lake.

Page 24 — Copy of Constitution of The Salt Lake Yacht Club.

Page 25 — Copy of certificate of membership in Salt Lake Yacht Club, signed by Captain Davis in 1874.

Pages 26-A thru 26-D — Various newspaper accounts in 1870's and 1880's showing

	illustrative commercial and recreational boating activities on the lake.
Page 27	Newspaper account April 20, 1926 of the death of Captain David L. Davis, ending "50 year Lake voyaging."
Pages 28-30	Pictures of boat referred to in Journal of Captain Davis.
Page 31	Account of Captain Edwin G. Brown and his many boating activities on the lake prior to his death in 1937, including heading the Salt Lake Yacht Club, which then "owned over forty craft on Great Salt Lake."
Page 32	Photographs of Great Salt Lake boats and dock facilities.
Page 32-A	Photograph of boat used to haul supplies, cattle and buffalo from Antelope Island to mainland near date of statehood, and picture of Zillah Walker Manning, a witness (see T. 220-22).
Page 33	Newspaper advertisement listing "moonlight boating" by Saltair Resort in 1909.
Pages 34-A thru 34-D	Newspaper accounts in 1909 of various boats and boating activities on the Great Salt Lake.

P-9 Photograph of steamboat "Promontory" (T. 60).

P-10 Specifications for ship "Promontory" (T. 60).

P-11 Photograph of Salt Lake County Boat Harbor (T. 60).

P-12 Photograph of scow driver (derrick on a boat on lake) (T. 109).

P-13 Publication of Brotherhood of Engineers' Monthly Journal, discussing construction of Lucin Cutoff trestle, and use of fleet of boats consisting of seven tug boats, sternwheel steamer, numerous small boats, and nine gasoline launches, each capable of carrying from 15 to 35 persons "for a sail on the lake." (T. 109).

P-14 Publication showing photographs of boats of Utah Geological Survey currently in use on the lake (T. 144).

P-15 Copy of Senate Bill 25 introduced in the 91st Congress to create Antelope Island National Monument on Great Salt Lake (T. 130).

P-16 Map prepared by National Park Service with respect to congressional hearings on S.B. 25, and showing facilities of Antelope Island State Park on Great Salt Lake (T. 136).

P-17 Copy of lease agreement showing rental of Utah Geological Survey boat for scientific purposes at the rate of $550.00 per day (T. 142).

P-18 Copy of Utah statutes creating Great Salt Lake Authority and Utah Park and Recreation Commission, and assigning jurisdic-

tion over lake and boating activities. (T. 138).

P-19 Drawings and specifications of patrol boats currently in use by Southern Pacific Company on Great Salt Lake (T. 150).

P-20 Album of photographs of barges, tugboats, other craft and operations during construction of railroad causeway on Great Salt Lake (T. 185).

P-21 Pamphlet of specifications of barges and marine craft used in construction of railroad causeway on lake (T. 189).

P-22 Article on Commercial Transportation on the Inland Waterways, showing commercial barges in common use today that could successfully navigate Great Salt Lake (T. 205).

P-23 Motion picture with sound track showing barge and marine operation during construction of railroad causeway (T. 204).

P-24, 25 Photographs of 42 foot steel boat of Utah Geological Survey, as used for scientific purposes (T. 211).

P-26-28 Photographs of sailboats during 1968 sailboat regatta on Great Salt Lake (T. 211).

P-29 Photograph of present appearance of Little Valley boat harbor and dock area, having been constructed for use during railroad causeway project (T. 211).

P-30 Publication on Bird Life of Great Salt Lake by William H. Behle (T. 213).

P-31 Copy, Senate Hearings on S.B. 265 (Great Salt Lake Lands Act) (T. 237).

P-32 Copy, House Hearings on H.R. 1791 (Great Salt Lake Lands Act) (T. 237).

P-33 Copy, House Committee Report on H.R. 1791 (Great Salt Lake Lands Act) (T. 237).

P-34 Copy, Senate Committee Report on S.B. 265 (Great Salt Lake Lands Act) (T. 237).

P-35 Copy, Utah Senate Bill 8, accepting federal conditions of Great Salt Lake Lands Act (T. 237).

P-36, 37 Copy, documents showing federal recognition of state ownership of waterfowl areas located on lake bed lands (T. 238).

P-38 Documents relating to Willard Bay impoundment as part of Weber Basin Project, showing purchase by the United States from the State of Utah of portion of lake bed lands (T. 238).

P-39 Copy, Utah statute and U.S. statute relating to Bear River Bird Refuge, showing mutual recognition by U.S. Congress and Utah Legislature that Great Sale Lake was navigable (T. 242).

P-40 Contract showing present mining and removal of lime sand for flux from Stansbury Island on Great Salt Lake (T. 285).

D-1 Map of Antelope Island and southern part of Great Salt Lake (T. 30).

D-2 Map of Great Salt Lake, prepared by U.S. G.S. (T. 245).

D-3 Historical Materials relating to boating on Great Salt Lake (T. 268).

D-4 Report by U.S. Army Corps of Engineers concerning feasibility of building new boat harbor on Great Salt Lake (T. 281).

C. SUMMARY OF PHYSICAL CHARACTERISTICS OF GREAT SALT LAKE AT STATEHOOD.

The preceding summary of the testimony of witnesses and the identification of exhibits illustrates the clear capacity of the Great Salt Lake to support commercial navigation and the many and varied uses made of the lake for that purpose. This section of the brief is simply a recapitulation of some of the highlights of that evidence which shows the physical capability of the lake at the date of statehood to support commercial navigation, as demonstrated by some of the major uses made of the lake at times when the water level was lower than at statehood. In other words, if the lake at a depth of approximately 26 feet successfully supported the fleet of commercial vessels used for the construction of the railroad causeway, then the lake certainly could have supported the same craft at the date of statehood when it was approximately five feet deeper.

This section of the brief, then, is only an abbreviated recital of some of the highlights contained in the foregoing sections summarizing the evidence, and those preceding sections should be reviewed in detail for a much more complete picture of the navigation uses on the lake and the lake's capability of supporting such navigation. Therefore, in a nutshell, the following are some of the most significant physical characteristics and capabilities of the Great Salt Lake (at the date of statehood) with respect to its navigability:

1. The Great Salt Lake, at statehood, was a relatively large body of water, 77 miles long, 32.5 miles

wide, and 30 feet deep; the areas of the lake which had a depth of 30 feet or more were not narrow channels, but were several miles wide and extended substantially throughout the length of the lake; and some of the world's largest barges, as used during the railroad causeway construction and when fully loaded drawing 13 feet of water, actually operated from east to west across the width of the lake, and could have operated over practically the entire length of the lake, as shown on the area included within the contour line on Exhibit P-3 at elevation 4185 feet (or a water depth greater than 15.8 feet at statehood). See, generally, Exhibit P-3 and T. 175, *et. seq.*, see also Exhibit P-2, which is the U.S. G.S. hydrograph showing gage readings of the level of Great Salt Lake from 1850 to the present date, and showing the lowest level of the lake at a depth in excess of 20 feet, the level at statehood at a depth in excess of 30 feet, and the current level in May, 1969 at a depth in excess of 26 feet.

2. The Great Salt Lake at statehood was susceptible of serving as a useful highway of commerce and supporting those types of commercial water craft then in use, including all of the barges in use anywhere in the world at that time (T. 207-08); the lake, at a level five feet lower than at statehood, in fact supported the causeway marine fleet that included deck barges each capable of transporting 1,600 tons per trip (more than 13 times the capacity of the steamer mentioned by the Court in *The Daniel Ball, supra,*) and larger dump barges each capable of transporting a much greater per trip tonnage (equal to the tonnage that 90 railroad cars would have been capable of hauling).

3. The Great Salt Lake was and is particularly economical for navigation, because:

(a) The water does not freeze in winter, as illustrated by the fact that the causeway fleet operated day and night, six or seven days a week, twelve months a year (T. 177);

(b) Harbor and dock facilities are easy to construct, as illustrated by the fact that the harbor dredged at Little Valley near Promontory Point was 400 feet wide and 1,500 feet long and was unusually inexpensive because it was clay with very little rock (T. 181); due to lack of currents and tides in the lake, the harbor did not silt or fill and during the two years of continual use no further dredging, cleaning or maintenance was required (T. 182-84); and, in general, the cost of harbor construction and maintenace on the Great Salt Lake was "appreciably less" than on other inland waterways customarily used for navigation (T. 184).

(c) The greater bouyancy of the waters of the Great Salt Lake make navigation more economic than navigation on other inland waters or oceans because there is at least a 20% bonus in carrying capacity (T. 171); the dump barges that operated fully loaded on Great Salt Lake with a 13 foot draft would have required a 15½ foot draft on the Mississippi River, and since that river has a 9 foot governing channel, could only have operated there with a partial load (T. 175-76); and barges in common use today, such as grain barges, cement barges, petroleum barges and all other commer-

cial barges shown in a publication entitled "Commercial Transportation on the Inland Waterways," published by the Society of Naval Architects and Marine Engineers (Exhibit P-22), could operate fully loaded on the Great Salt Lake (T. 206).

To emphasize again, the foregoing review of the physical susceptibility of the Great Salt Lake for commercial navigation does not include references to the many actual navigational uses of the lake. The latter are included in Sections II A and II B.

FINDINGS OF FACT

Finding No. 1. The Great Salt Lake was located entirely within the State of Utah on January 4, 1896, the date at which Utah obtained statehood, and at all times since has been and now is located entirely within said State.

Reference: Exhibits P-1, P-2 and P-3.

Finding No. 2. The general physical characteristics of the Great Salt Lake as of January 4, 1896, may be summarized as follows:

a. The lake had a maximum length of 77 miles; a maximum width of 32.5 miles; and a depth approximating 30 feet. The bottom of the lake was, and has continued to be, relatively flat.

Reference: Exhibits P-3, P-4 and P-5.

b. The lake has no outlet; is fed by a number of

tributary rivers, the principal ones of which are the Jordan River, Weber River and Bear River; experiences seasonal fluctuations averaging between one and two feet in vertical elevation each year; and has a salt or brine concentration in the water in excess of 20%.

Reference: Exhibits P-1, P-2, and T. 171-72.

c. The lake affords a more economic commercial navigation than most inland navigable waters of the United States because the salt concentration in the water (1) gives a much greater buoyancy than either fresh water or sea water, thus supporting greater loads with less draft; and (2) permits ice from freezing in winter months, thus permiting year-round navigational uses. Further, harbor construction is less expensive because the material dredged is clay rather than rock, and harbor maintenance is less expensive because there are no tides and currents to cause filling or sedimentation.

Reference: Thomas T. Lundee, witness for plaintiff, T. 171, 175-176, 177, 182-84.

d. The lake on January 4, 1896 was physically capable of supporting those types of water craft which were commonly used for commercial navigation on inland navigable waters on said date, including the largest barges then in use anywhere in the world; and is now physically capable of supporting barges and similar craft in common current use for navigation on inland navigable waters of the United States.

Reference: Thomas T. Lundee, witness for plaintiff, T. 206-08, Exhibit P-22. During the construction

of the Southern Pacific railroad causeway in 1957-59, when the lake successfully supported some of the world's largest barges, the lake was five feet lower or shallower than at statehood; and, further, in 1963-64, at the lowest or shallowest point in the lake's 119 year history of recorded elevation readings, the lake had a depth in excess of 20 feet (Exhibit P-2 (hydrograph)).

Finding No. 3. Indicative of the fact that the Great Salt Lake is and at the date of statehood was susceptible of commercial navigation, it is found that the Great Salt Lake either has been or currently is being navigated for various purposes, including shipment of cattle, sheep, horses, buffalo, ores and minerals, fence posts, railroad ties, guano, commercial salt, decorative salt crystals and rocks, farm machinery, grain, household supplies and pump station supplies; and has also been navigated for the construction of a railroad trestle and causeway, recreation craft for paying passengers and for commercial hire or rental, private craft for recreation, scientific investigative purposes, railroad maintenance patrol, law enforcement patrol, rescue operations, and the harvest of brine shrimp.

Reference: The early history of navigation on the Great Salt Lake is illustrated quite well in the compilation of historical materials contained in Exhibit P-8. This collection covers a period of time commencing more than forty years before statehood and continues for a number of years after statehood. Only limited references to that material will be made here, but the entire contents are very enlightening and should be examined in conjunction with T. 30-69, which is an explanation by plaintiff's counsel of the importance and relevance of that material. See also the Summary of Exhibits contained in this brief.

The following references are cited with respect to different types of navigational uses, although many boats were used for several purposes, such as hauling passengers, ore, livestock and other products. The references include not only historical materials, but also testimony from live witnesses and the evidence contained within the various exhibits.

a. *Livestock,* including cattle, sheep, horses and buffalo.

Joseph S. Nelson, witness for plaintiff, T. 85-86, 89, 93-94, 96-97.

Zillah Walker Manning, witness for plaintiff, T. 217-19, 221-22, 227-28.

Leon L. Imlay, witness for plaintiff, T. 70-71.

Exhibit P-8, pages 15, 16-A through 16-D, 17, 19, 32-A.

b. *Ore and Minerals.*

Exhibit P-8, pages 2-B, 4 (ore, bullion, coke, charcoal, coal), 16-A through 16-D, 18-A and 18-B (gold).

Exhibit P-8, pages 9, 10.

c. *Fence Posts and Railroad Ties.*

Exhibit P-8, pages 2-A, 15, 16-A through 16-D.

d. *Guano.*

Phil Dern, witness for plaintiff, T. 116-17, 123-24.

Leon I. Imlay, witness for plaintiff, T. 70-71.

Elmer Butler, witness for defendant, T. 262.

e. *Commercial Salt.*

Exhibit 8, pages 16-A through 16-D (special 75 foot salt transport barge).

f. *Decorative Salt Crystals and Rocks.*

John Clawson Silver, witness for plaintiff, T. 289.

g. *Farm and Industrial Machinery.*

Zillah Walker Manning, witness for plaintiff, T. 222.

Phil Dern, witness for plaintiff, T. 124.

h. *Grain.*

Zillah Walker Manning, witness for plaintiff, T. 223.

i. *Household Supplies.*

Exhibit P-8, page 32-A.
Zillah Walker Manning, witness for plaintiff, T. 220.

j. *Pump Station Supplies.*

Leon L. Imlay, witness for plaintiff, T. 68-69, 73.

k. *Construction of Railroad Trestle.*

Exhibit P-8, pages 2-C
Exhibit P-9
Exhibit P-10
Exhibit P-12
Exhibit P-13

l. *Construction of Railroad Causeway.*

Thomas T. Lundee, witness for plaintiff, T. 166-210.
Exhibit P-20
Exhibit P-21
Exhibit P-22
Exhibit P-23
Exhibit P-29

m. *Commercial Recreation Craft.*

Exhibit P-8, pages 2, 2-B, 3-5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 14-A, 20-22, 23-A through 23-D,

26-A through 26-D, 27, 28-30, 31, 32, 33, 34-A through 34-D.

Exhibit P-9

Exhibit P-10

Exhibit P-11

Exhibit P-13

Leon L. Imlay, witness for plaintiff, T. 62-68.

Joseph S. Nelson, witness for plaintiff, T. 83-92.

Claire Wilcox Noall, witness for plaintiff, T. 75-79.

Francis W. Kirkham, witness for plaintiff, T. 233-34.

Phil Dern, witness for plaintiff, T. 111-116, 119.

John Clawson Silver, witness for plaintiff, T. 287-91.

Reese F. Llewellyn, witness for plaintiff, T. 104-107.

Harold J. Tippetts, witness for plaintiff, T. 129-37.

n. *Private Craft for Recreation.*

Exhibit P-8, pp. 20-22, 23-A through 23-D, 24, 25, 26-A through 26-D, 27, 28-30, 31, 32-A through 34-D.

Exhibit P-11

Exhibits P-26, P-27, P-28.

Leon L. Imlay, witness for plaintiff, T. 62-68.

Joseph S. Nelson, witness for plaintiff, T. 83-92.

Claire Wilcox Noall, witness for plaintiff, T. 75-79.

Phil Dern, witness for plaintiff, T. 111-116.

Reese F. Llewellyn, witness for plaintiff, T. 104-07.

Harold J. Tippetts, witness for plaintiff, T. 129-37.

o. *Craft for Scientific Purposes.*

William P. Hewitt, witness for plaintiff, T. 139-46.

Exhibit P-8, page 1, and T. 34.
Exhibit P-14.
Exhibit P-17
Exhibits P-24, P-25

p. *Railroad Maintenance Patrol.*

Exhibit P-19
Golden O. Peterson, witness for plaintiff, T. 148-56.
Joseph S. Nelson, witness for plaintiff, T. 96.

q. *Law Enforcement Patrol.*

Reese F. Llewellyn, witness for plaintiff, T. 105-06.
Harold J. Tippetts, witness for plaintiff, T. 132, 134.
Exhibit P-18.

r. *Rescue Operations.*

Harold J. Tippetts, witness for plaintiff, T. 132.
Reese F. Llewellyn, witness for plaintiff, T. 105-06.

s. *Brine Shrimp Harvest.*

Gail Sanders, witness for plaintiff, T. 157-64.

CONCLUSIONS OF LAW

Conclusion No. 1. The Great Salt Lake was susceptible of being used for commercial navigation on January 4, 1896, the date at which Utah obtained statehood; and was therefore a navigable body of water, and the State of Utah on that date received title to the bed of the Great Salt Lake.

Reference: Findings of Fact and Summary of Evidence, and cases cited in Memorandum.

Conclusion No. 2. Issues of law raised by the plaintiff relating to equitable estoppel against the United States and compromise and settlement between Utah and the United States should be reserved for subsequent determination, if any such determination becomes necessary. Likewise, all issues relating to the exact boundary of the bed of the Great Salt Lake as of January 4, 1896, as well as the ownership of lakebed lands now uncovered by the receding waters of the lake since said date of statehood, should be reserved for subsequent determination.

Reference: Memorandum, including footnote No. 1 at page 3.

V. CONCLUSION

The Great Salt Lake, world famed for its resorts and for the buoyancy of its waters, and one of the largest lakes in the Western Hemisphere not interconnected to an ocean, is challenged in this proceeding as to its navigability. The question is whether on January 4, 1896, the date of Utah's admission into the union, the lake was physically susceptible of commercial navigation. The uncontroverted evidence shows that the lake was not only susceptible of commercial navigation at that date, but was actually used for commercial navigation at, before, and after the date of statehood, and is being so used at the present time. As an example, from 1957 until 1959, when the lake was about 5 feet

lower (or shallower) than it was at the date of statehood, the lake supported some of the world's largest barges (each capable of carrying the equivalent tonnage of 90 railroad cars) as part of a marine fleet that constructed the Southern Pacific Company's causeway across the lake, a $49,000,000.00 job which at that time was considered to be one of the great engineering feats in history. The barges were so large that they could not have navigated when fully loaded on the Mississippi River, but they navigated without difficulty on the Great Salt Lake, day and night, winter and summer, during the two year construction period. The Great Salt Lake was not only navigable, but was unusually economic to navigate, because of greater buoyancy of the water, the absence of ice, and the ease with which harbor facilities could be constructed and maintained.

The Court should adopt the proposed Conclusions of Law, as fully supported by the proposed Findings of Fact.

Respectfully submitted,

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August 1, 1969

CERTIFICATE OF SERVICE

I, Vernon B. Romney, Attorney General of, and counsel for, the State of Utah, and a member of the Bar of this Court, do hereby certify that copies of the foregoing brief of the State of Utah were served upon the Solicitor General of the United States of America, Department of Justice, Washington, D.C., 20530; by mailing the same, air mail postage prepaid, this 30th day of July, 1969, all in accordanc with the Rules of this Court.

VERNON B. ROMNEY
Utah Attorney General